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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/805,766	03/16/2001	Kenichi Shiraishi	0670-257	7907
31780 7590 04/17/2007 ERIC ROBINSON PMB 955 21010 SOUTHBANK ST. POTOMAC FALLS, VA 20165			EXAMINER BURD, KEVIN MICHAEL	
			ART UNIT	PAPER NUMBER
			2611	
SHORTENED STATUTORY PERIOD OF RESPONSE		MAIL DATE	DELIVERY MODE	
3 MONTHS		04/17/2007	PAPER	

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

09/805,766

Applicant(s)

SHIRAISHI ET AL.

Examiner

Kevin M. Burd

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 March 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 2-12 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 2-12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

1. This office action, in response to the request for continued examination and the amendment filed 3/21/2007, is a non-final office action.

Continued Examination Under 37 CFR 1.114

2. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 3/21/2007 has been entered.

Response to Arguments

3. Applicant's arguments filed 3/21/2007 have been fully considered but they are not persuasive. Leimer discloses providing feedback signals to remove the common clock phase noise according to the receiver's C/N and the intensity of the phase noise as stated in the previous office action. The feedback is set according to the number of phase errors present (column 4, lines 62-67). The relationship between the number of phase errors, the phase noise intensity and the C/N is shown in figures 2 and 3. When the phase error is below a certain value, the phase noise intensity will be at a certain value and will be corrected. When the phase error is above this value, the phase noise intensity will be a different value and will be corrected as well. Since these values are different, different corrective measures will take place to compensate for the phase

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noise. The claimed "rapid variation property" and the "gentle variation property" are not defined in the claim. Leimer discloses these properties. When the error rate is lower than a threshold, the number of errors is low as is the phase noise intensity (figure 2). Therefore, a small correction is necessary. This correction is the "rapid variation property". When the error rate is larger than a threshold, the number of errors is high as is the phase noise intensity (figure 2). Therefore, a larger correction is necessary. This correction is the "gentle variation property." For this reason and the reasons stated in the previous office action, the claims are rejected as stated below.

Claim Objections

4. Claims 2, 6 and 11 are objected to because of the following informalities: the last portion of the newly amended limitation found in these claims is incomplete. The portion recites "a carrier regenerative loop characteristic corresponding to a critical CNR by a phase noise having a gentle variation property". It is believed the phrase "is set up" needs to be added to these claims. Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 2, 3, 6, 8 and 11 are rejected under 35 U.S.C. 102(b) as being anticipated by Leimer (US 6,081,228).

Regarding claims 2, 6 and 11, Leimer discloses a GPS receiver shown in figure 1. The tracking errors are measured (column 5, lines 29-33) and shown in figure 2. The receiver's C/N is measured and is varied while holding the intensity of the phase noise fixed (column 4, lines 62-67). The phase noise is tracked and the estimate is delivered back into sections of the receiver channels to remove common clock phase noise from each of the channels' measurements of satellite carrier phase (column 2, lines 8-23). Leimer discloses providing feedback signals to remove the common clock phase noise according to the receiver's C/N and the intensity of the phase noise. The feedback is set according to the number of phase errors present (column 4, lines 62-67). The relationship between the number of phase errors, the phase noise intensity and the C/N is shown in figures 2 and 3. When the phase error is below a certain value, the phase noise intensity will be at a certain value and will be corrected. When the phase error is above this value, the phase noise intensity will be a different value and will be corrected as well. Since these values are different, different corrective measures will take place to compensate for the phase noise. The claimed "rapid variation property" and the "gentle variation property" are not defined in the claim. Leimer discloses these properties. When the error rate is lower than a threshold, the number of errors is low as is the phase noise intensity (figure 2). Therefore, a small correction is necessary. This correction is the "rapid variation property". When the error rate is larger than a threshold, the number of

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errors is high as is the phase noise intensity (figure 2). Therefore, a larger correction is necessary. This correction is the "gently variation property."

Regarding claims 3 and 8, Leimer discloses the phase noise estimate is delivered back to the filters to remove common phase noise (column 2, lines 8-23 and figure 1). This act is the setting the filter factor.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 4, 5, 7, 9, 10 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Leimer (US 6,081,228) in view of Miya et al (US 5,572,516).

Regarding claims 4, 5, 7, 9, 10 and 12, Leimer discloses the GPS receiver shown in figure 1 and described above in paragraph 5. Leimer does not disclose using PSK to modulate the signal received in the receiver of figure 1. Miya discloses it is well known to transmit PSK modulated signals in GPS systems. This is shown in figure 1 and described in column 4, line 60 to column 5, line 20 and column 8, lines 4-21. PSK signals are commonly used and inexpensive to transmit. For these reasons, it would have been obvious for one of ordinary skill in the art at the time of the invention to combine the use of PSK signal reception of Miya into the receiver of Leimer.


Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin M. Burd whose telephone number is (571) 272-3008. The examiner can normally be reached on Monday - Friday 9 am - 5 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jay Patel can be reached on (571) 272-2988. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Kevin M. Burd
4/11/2007


KEVIN BURD
PRIMARY EXAMINER